



Shaft Hedge Clipper

Operator's Manual

MODELS:

SHC-1700 - Type 1 - S/N 001001 & Up

SHC-1700 - Type 1E - S/N 501001 - 504767

SHC-2100 - Type 1 - S/N 001001 & Up

SHC-2100 - Type 1E - S/N 501001 - 506455

SHC-2400 - Type 1 - S/N 001001 & Up

SHC-2400 - Type 1E - S/N 00501001 &Up

HCA-2400 - Type 1E - S/N 00501001 &Up



WARNING



The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

WARNING DANGER

Read rules for safe operation and instructions carefully. ECHO provides an Operator's Manual and a Safety Manual. Both must be read and understood for proper and safe operation. Failure to do so could result in serious injury.

INTRODUCTION

Welcome to the ECHO family. This ECHO product was designed and manufactured to provide long life and on-the-job-dependability. Read and understand this manual and the SAFETY MANUAL you found in the same package. You will find both easy to use and full of helpful operating tips and SAFETY messages.

WARNING DANGER

Read rules for safe operation and instructions carefully. ECHO provides an Operator's Manual and a Safety Manual. Both must be read and understood for proper and safe operation.

THE OPERATORS MANUAL --

contains specifications and information for operation, starting, stopping, maintenance, storage and assembly specific to this product.

THE SAFETY MANUAL --

explains possible hazards involved with the use of Hedge Clippers and what measures you should take to make their use safer.

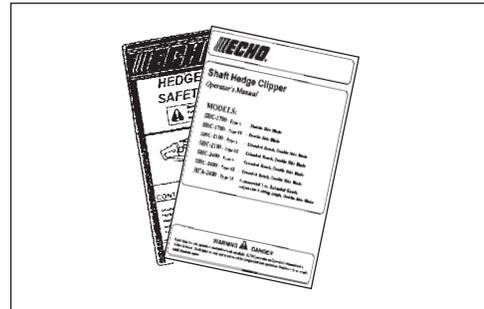


TABLE OF CONTENTS

| | | | |
|---|----|--|----|
| Introduction | 2 | - Starting Cold Engine | 17 |
| - The Operator's Manual | 2 | - Starting Warm Engine | 18 |
| - The Safety manual | 2 | - Stopping Engine | 19 |
| Manual Safety Symbols and Important Information | 3 | Maintenance | 20 |
| Safety | 3 | - Skill Levels | 20 |
| - General Description | 3 | - Maintenance Intervals | 20 |
| - Decals | 4 | - Air Filter | 21 |
| - International Symbols | 5 | - Fuel Filter | 21 |
| - Equipment | 5 | - Spark Plug | 22 |
| - Fuel | 6 | - Exhaust System | 22 |
| - Personal Condition and Safety Equipment | 6 | - Cooling System Cleaning | 23 |
| - Safe Operation | 7 | - Carburetor Adjustment Emission | 24 |
| - Extended Operation/Extreme Conditions | 8 | - Carburetor Adjustment Non Emission | 25 |
| Description | 9 | - Lubrication | 26 |
| - Contents | 9 | - Sharpening Blades | 28 |
| - Emission Control | 9 | - Starter Rope Replacement | 28 |
| Specifications | 12 | Storage | 30 |
| - Models SHC-1700, 2100, 2400, HCA-2400 | 12 | Servicing Information | 32 |
| Assembly | 13 | - Parts | 32 |
| - Gear Housing Assembly / Drive Shaft | 13 | - Service | 32 |
| - Power Head / Drive Shaft | 13 | - ECHO Consumer Product Support | 32 |
| - Throttle Cable and Ignition Leads | 12 | - Warranty Card | 32 |
| Pre-Operation | 14 | - Additional or Replacement Manuals | 32 |
| - Fuel | 14 | - Manual Ordering Instructions | 32 |
| - Equipment Check | 15 | | |
| - Determine Operation Area | 15 | | |
| Operation | 16 | | |

Specifications, descriptions and illustrative material in this literature are as accurate as known at the time of publication, but are subject to change without notice. Illustrations may include optional equipment and accessories, and may not include all standard equipment.

MANUAL SAFETY SYMBOLS AND IMPORTANT INFORMATION

Throughout this manual and on the product itself, you will find safety alerts and helpful, information messages preceded by symbols or key words. The following is an explanation of those symbols and key words and what they mean to you.



This symbol accompanied by the words **WARNING** and **DANGER** calls attention to an act or condition that can lead to serious personal injury to operator and bystanders.



The circle with the slash symbol means whatever is shown within the circle is prohibited.



IMPORTANT The enclosed message provides information necessary for the protection of the unit.

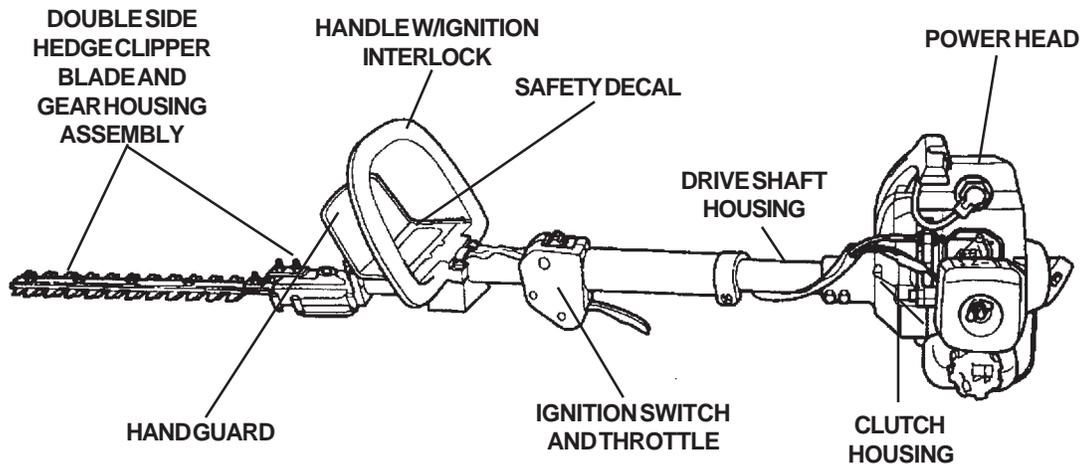
NOTE This enclosed message provides tips for use, care and maintenance of the unit.

SAFETY

GENERAL DESCRIPTION

IMPORTANT

See Description and Specification sections for full description and illustration of model variation in power head, and handle type.



SHC-1700 SHOWN

DECALS, WARNING/INFORMATIONAL

Locate these safety decals on your unit. The complete unit illustration found in the "DESCRIPTION" section, will help you locate them. Make sure the decals are legible and that you understand and follow the instructions on them. If a decal cannot be read, a new one can be ordered from your ECHO dealer. See PARTS ORDERING instructions for specific information.

HCA/SHC-2400 DRIVE SHAFT



WARNING ⚠ DANGER



This unit is not designed to insulate against hazards associated with the contact of wires carrying electrical current.

To avoid possible injury/death due to electrical shock or other hazards, **DO NOT** operate unit if any wires (power, telephone, cable, etc.) are closer than 15 feet (4.5 meters) minimum distance, to any part of the unit or operator.

P/N 890178-54331

HCA-2400 DRIVESHAFT



WARNING ⚠ DANGER



- This unit can be dangerous if used improperly.
- Falling objects and/or blade contact can cause serious injury to operator, helpers and bystanders.
- Keep helpers and bystanders at least 50 feet (15m) clear of operating area.
- To reduce injury risk, **READ AND UNDERSTAND** the Operators Manual, replacement copies are available through any ECHO Dealer.
- Wear Protective Clothing (head, hearing and eye protection meeting ANSI standards) specified in the Operators Manual.
- **NEVER** operate unit if ignition interlock does not work.
- **NEVER** intentionally bypass the interlock system.
- **STOP** engine before making repairs or blade angle adjustments.
- **ALWAYS** use the adjustment handle when adjusting blade angle.
- Keep hands away from blade.

SHC-2400 DRIVESHAFT



WARNING ⚠ DANGER



- This unit can be dangerous if used improperly.
- Falling objects and/or blade contact can cause serious injury to operator, helpers and bystanders.
- Keep helpers and bystanders at least 50 feet (15m) clear of operating area.
- To reduce injury risk, **READ AND UNDERSTAND** the Operator's Manual, replacement copies are available through any ECHO Dealer.
- Wear Protective Clothing (head, hearing and eye protection meeting ANSI standards) specified in the Operator's Manual.
- **STOP** engine before making repairs or blade adjustments
- Keep hand away from blade.

P/N 89016021560

SHC-1700,2100 HAND GUARD



WARNING ⚠ DANGER



This unit is not designed to insulate against hazards associated with the contact of wires carrying electrical current. To avoid possible injury/death due to electrical shock or other hazards. **DO NOT** operate unit if any wires (power, telephone, cable, etc.) are closer than 15 feet (4.5 meters) minimum distance, to any part of the unit or operator.

- This unit can be dangerous if used improperly.
- Falling objects and/or blade contact can cause serious injury to operator, helpers and bystanders.
- Keep helpers and bystanders at least 50 feet (15m) clear of operating area.
- To reduce injury risk, **READ AND UNDERSTAND** the Operator's Manual, replacement copies are available through any ECHO Dealer.
- Wear Protective Clothing (head, hearing and eye protection meeting ANSI standards) specified in the Operator's Manual.
- **NEVER** operate unit if ignition interlock does not work.
- **NEVER** intentionally bypass the interlock system.
- **STOP** engine before making repairs or blade adjustments.
- Keep hand away from blade.

P/N 89016021460

INTERNATIONAL SYMBOLS

| Symbol form/shape | Symbol description/application | Symbol form/shape | Symbol description/application |
|---|--|---|---|
|  | Read and understand Operator's Manual. |  | Fuel and oil mixture |
|  | Wear eyes, ears and head protection |  | Finger Severing |
|  | Emergency stop |  | Carburetor adjustment - Low speed mixture |

| Symbol form/shape | Symbol description/application | Symbol form/shape | Symbol description/application |
|---|--------------------------------|---|--|
|  | Hot Surface |  | Carburetor adjustment - High speed mixture |
| | |  | Carburetor adjustment - Idle speed |

EQUIPMENT

Before operation a complete check of the unit must be performed;

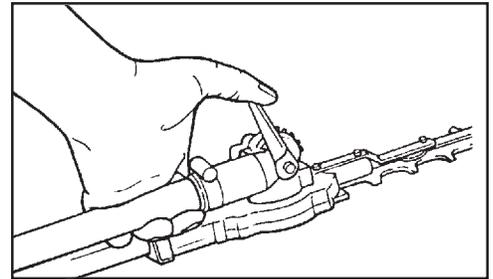
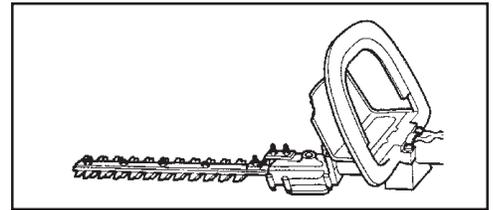
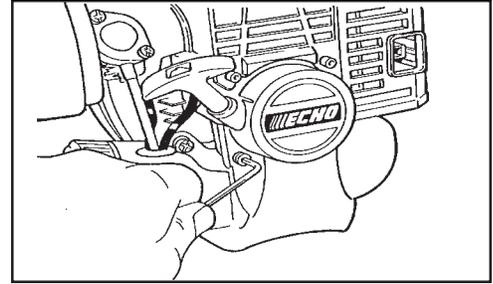
- Check unit for loose/missing nuts, bolts and screws. Tighten and/or replace as needed.
- Inspect fuel lines, tank and area around carburetor for fuel leaks. DO NOT operate unit if leaks are found.

- Inspect hand guard for damage. Replace if damaged or missing.

- Check that the blade assembly is firmly attached and in safe operating condition. Dull, loose or damaged blades should not be used.

- Check that loop (front) handle and shoulder strap/ or shoulder/waist harness are adjusted for safe, comfortable operation. See Assembly for proper adjustment.

- Tighten the blade angle adjustment lever before operating the HCA-2400.



FUEL

WARNING DANGER

Fuel is **VERY** flammable. Use extreme care when mixing, storing or handling or serious personal injury may result.

- Use an approved fuel container.
- DO NOT smoke near fuel.
- DO NOT allow flames or sparks near fuel.
- Fuel tanks/cans may be under pressure. Always loosen fuel caps slowly allowing pressure to equalize.
- NEVER refuel a unit when the engine is HOT!
- NEVER refuel a unit with the engine running.
- DO NOT fill fuel tanks indoors. ALWAYS fill fuel tanks outdoors over bare ground.

After Refueling;

- Wipe any spilled fuel from the unit.
- Move at least 10 ft. (3M) from refueling location before starting.

After Use;

- DO NOT store a unit with fuel in its tank. Leaks can occur. Return unused fuel to an approved fuel storage container.



PERSONAL CONDITION AND SAFETY EQUIPMENT

WARNING DANGER

Hedge Clipper users risk injury to themselves and others if the shaft hedge clipper is used improperly and or safety precautions are not followed. Proper clothing and safety gear must be worn when operating a shaft hedge clipper.

Physical Condition

Your judgment and physical dexterity may not be good:

- if you are tired or sick,
- if you are taking medication,
- if you have taken alcohol or drugs.

Operate unit only if you are physically and mentally well.



Eye Protection

Wear eye protection meeting ANSI Z87.1 of CE requirements whenever you operate the unit. Wear these goggles whenever you operate the shaft hedge clipper.

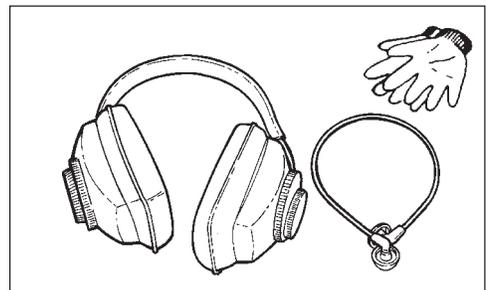


Face and Head Protection

When trimming overhead, wear head protection meeting ANSI Z89.1 or CE requirements with a full face shield.

Hand Protection

Wear no-slip, heavy duty work gloves to improve your grip on the Shaft Hedge Clipper handles. Gloves also reduce the transmission of machine vibration to your hands. Special vibration reducing gloves such as Echo's Pro-Comfort are designed to provide additional comfort.



Hearing Protection

Wear hearing protection. OSHA requires the use of hearing protection if this unit is used 2 hours per day or more. ECHO recommends wearing hearing protection whenever unit is used.

Proper Clothing

Wear snug fitting, durable clothing;

- Pants should have long legs, shirts with long sleeves.
- **DO NOT WEAR SHORTS,**
- **DO NOT WEAR TIES, SCARVES, JEWELRY.**

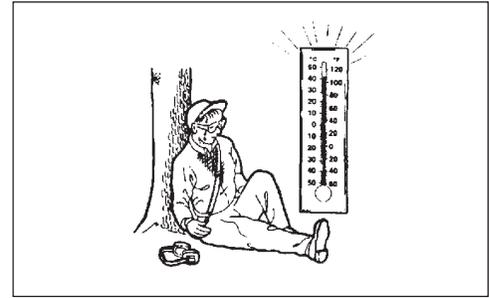
Wear sturdy work shoes with non-skid soles;

- **DO NOT WEAR OPEN TOED SHOES,**
- **DO NOT OPERATE UNIT BAREFOOTED.**



Hot Humid Weather

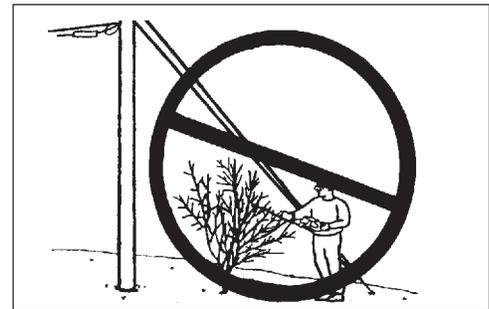
Heavy protective clothing can increase operator fatigue which may lead to heat stroke. Schedule heavy work for early morning or late afternoon hours when temperatures are cooler.



SAFE OPERATION

Determine Operation Area

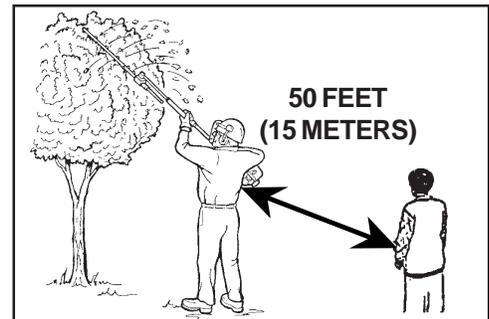
- Review the area to be trimmed. Look for hazards that could contribute to unsafe conditions. DO NOT operate unit if any wires (power, telephone, cable, etc.) are closer than 15 feet (4.6 meters) to any part of the operator or unit.
- Spectators and fellow workers must be warned, and children and animals prevented from coming nearer than 50 ft. (15 meters) while the Hedge Clipper is in use.



Operation

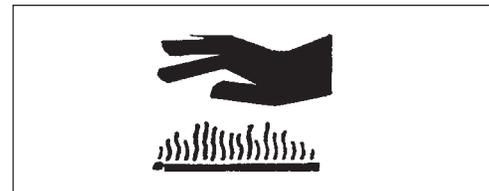
Use Proper Clothing & Equipment

- Before starting the unit, equip yourself and any other person working within the 50 ft. (15 M) Safety Zone with the required Protective Equipment and clothing.



Avoid Hot Surfaces

- During operation, the complete unit, especially the drive shaft housing, power head, muffler area and gear box may become very hot, too hot to touch. Avoid contact during and immediately after operation.

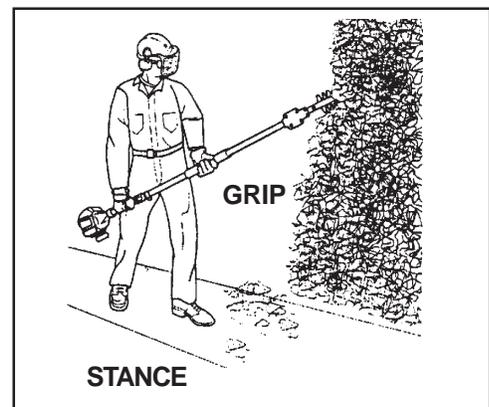


Keep A Firm Grip

- Hold the front and rear handles with both hands with thumbs and fingers encircling the handles

Keep A Solid Stance

- Maintain footing and balance at all times. Do not stand on slippery, uneven or unstable surfaces. Do not work in odd positions or on ladders. Do not over reach.



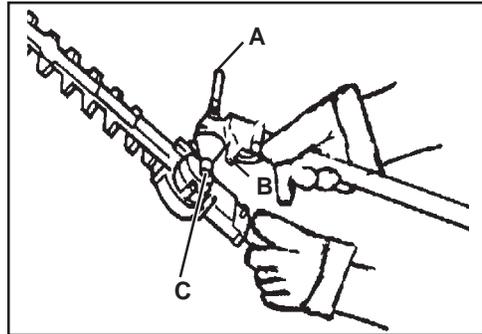
Operation (HCA)

- Never adjust blade angle of HCA while standing.
- Only adjust cutting angle with HCA resting flat on the ground, with the engine stop switch in the "STOP" position.
- Adjust cutting angle by moving locking lever (A) up. Depress blade indexing lever (B) and change blade angle with rear cutter assembly handle. Release indexing lever (B) into notch. Move locking lever (A) down to completely engage internal gears.



IMPORTANT

Lever (A) does not secure gearbox angle setting. Moving lever in the down position reduces internal play in the gear box. Do not over tighten castle nut (C) to insure gear box angle setting tightness because damage to internal gears will occur. If the lever is loose or very tight adjust nut (C) for snug 90° movement.

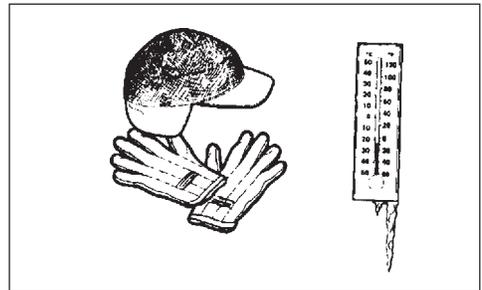


EXTENDED OPERATION/EXTREME CONDITIONS

Vibration and Cold

It is believed that a condition called Raynaud's Phenomenon, which affects the fingers of certain individuals may be brought about by exposure to vibration and cold. Exposure to vibration and cold may cause tingling and burning sensations followed by loss of color and numbness in the fingers. The following precautions are strongly recommended because the minimum exposure which might trigger the ailment is unknown.

- Keep your body warm, especially the head, neck, feet, ankles, hands and wrists.
- Maintain good blood circulation by performing vigorous arm exercises during frequent work breaks and also by not smoking.
- Limit the hours of operation. Try to fill each day with jobs where operating the trimmer or other hand-held power equipment is not required.
- If you experience discomfort, redness and swelling of the fingers followed by whitening and loss of feeling, consult your physician before further exposing yourself to cold and vibration.



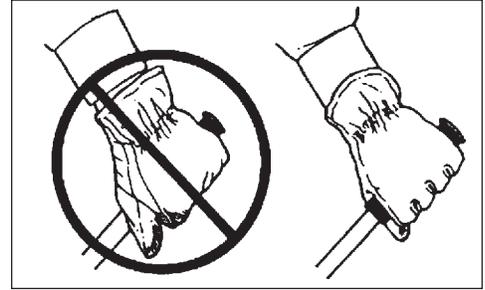
Repetitive Stress Injuries

It is believed that overusing the muscles and tendons of the fingers, hands, arms and shoulders may cause soreness, swelling, numbness, weakness and extreme pain in those areas. Certain repetitive hand activities may put you at a high risk for developing a Repetitive Stress Injury (RSI). An extreme RSI condition is Carpal Tunnel Syndrome (CTS), which could occur when your wrist swells and squeezes a vital nerve that runs through the area. Some believe that prolonged exposure to vibration may contribute to CTS. CTS can cause severe pain for months or even years.



To reduce the risk of RSI/CTS, do the following:

- Avoid using your wrist in a bent, extended or twisted position. Instead try to maintain a straight wrist position. Also, when grasping, use your whole hand, not just the thumb and index finger.
- Take periodic breaks to minimize repetition and rest your hands.
- Reduce the speed and force with which you do the repetitive movement.
- Do exercises to strengthen the hand and arm muscles.
- See a doctor if you feel tingling, numbness or pain in the fingers, hands, wrists or arms. The sooner RSI/CTS is diagnosed, the more likely permanent nerve and muscle damage can be prevented.



DESCRIPTION

The ECHO product you have purchased has been factory pre-assembled for your convenience. Due to packaging restrictions, some assembly of Models SHC-2100, SHC-2400 and HCA-2400 is required.

After opening the carton, check for damage. Immediately notify your retailer or ECHO Dealer of damaged or missing parts. Use the contents list to check for missing parts.

CONTENTS LIST

| | MODEL |
|--|------------------------|
| _____ 1 - Shaft Hedge Clipper Assembly | ALL |
| _____ 1 - Operator's Manual | ALL |
| _____ 1 - Hedge Clipper Safety Manual | ALL |
| _____ 1 - Warranty Statement | ALL |
| _____ 1 - Warranty Registration Card | ALL |
| _____ 1 - Scrench | ALL |
| _____ 1 - 3mm Hex wrench | SHC-2100/2400/HCA-2400 |
| _____ 1 - 4mm Hex Wrench | SHC-2400 |
| _____ 1 - 8mm/10mm Wrench | SHC-2400 |



EMISSION CONTROL - Type 1E Models

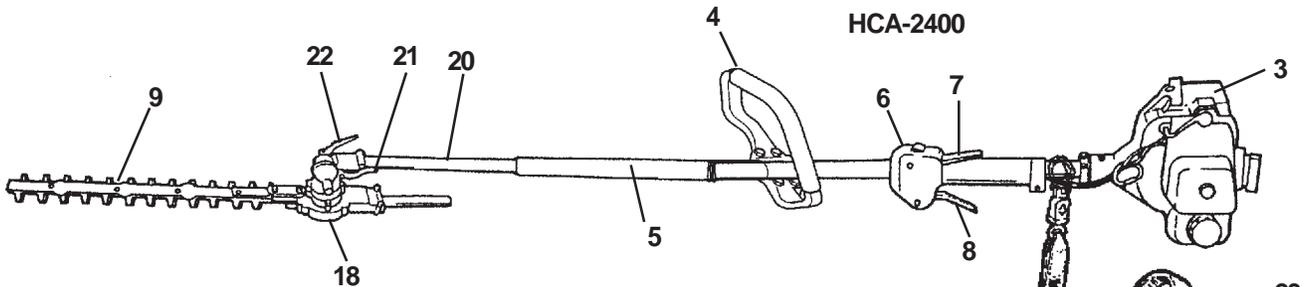
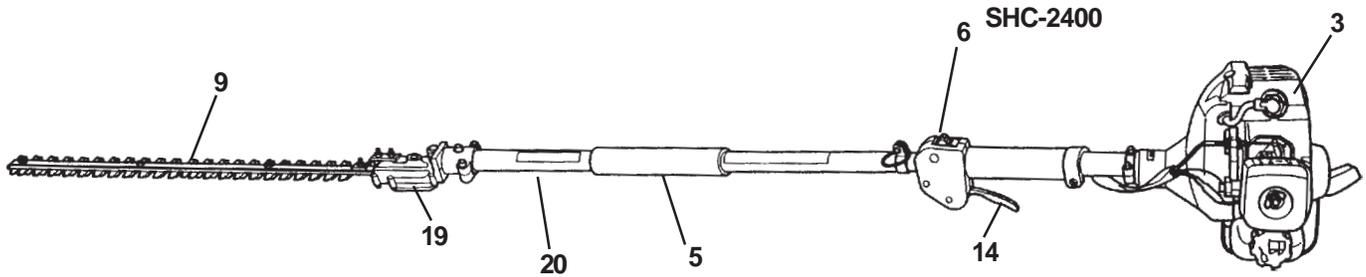
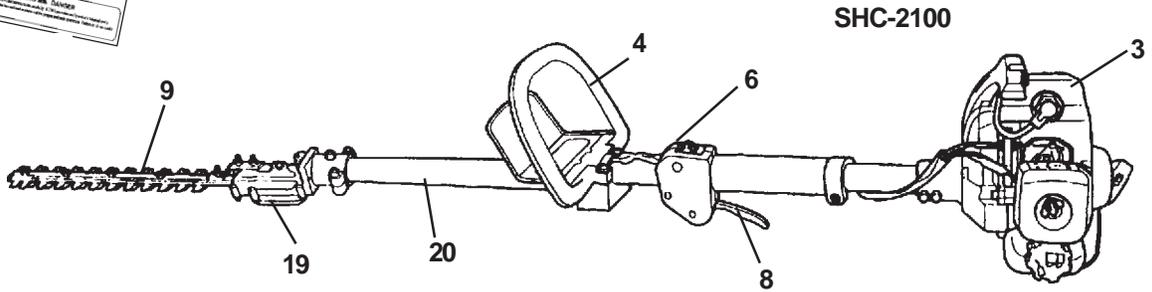
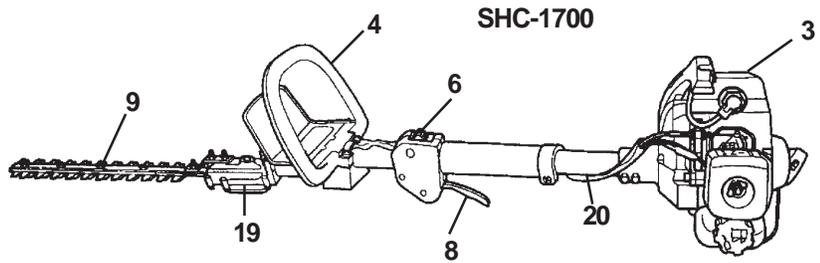
The emission control system for this engine is EM (Engine Modification).

IMPORTANT ENGINE INFORMATION

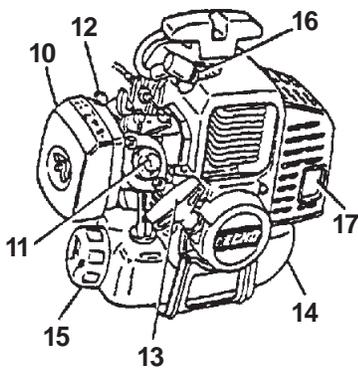
ENGINE FAMILY : TEH0240824RC
DISPLACEMENT : 23.6 cc
THIS ENGINE MEETS U.S. EPA PHI AND 1995 - 1998 CALIFORNIA EMISSION REGULATIONS FOR ULGE ENGINES. REFER TO OWNER'S MANUAL FOR MAINTENANCE SPECIFICATIONS AND ADJUSTMENTS.
KIORTIZ CORP.

An Emission Control Label is located on the engine. (This is an EXAMPLE ONLY, information on label varies by engine FAMILY).

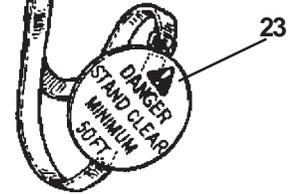
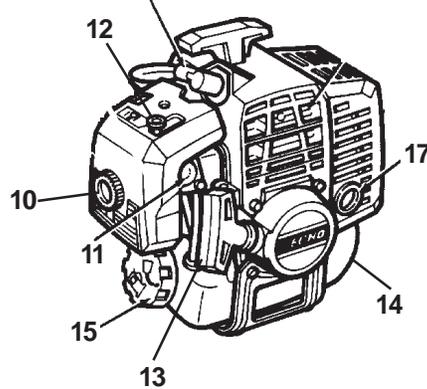
| ECHO LIMITED WARRANTY REGISTRATION CARD (Copy of Limited Warranty Statement included with Operator's Manual) | |
|---|--|
| PLEASE PRINT | |
| 1. PURCHASER NAME (OWNER OR BUYER) | |
| 2. ADDRESS | |
| 3. CITY | |
| 4. STATE | |
| 5. ZIP CODE | |
| 6. MODEL | |
| 7. SERIAL NUMBER | |
| 8. DATE OF PURCHASE | |
| 9. TYPE OF PURCHASE | |
| 10. TYPE OF BUSINESS | |
| 11. TYPE OF USE | |
| 12. TYPE OF OPERATION | |
| 13. TYPE OF CUTTER | |
| 14. TYPE OF MOTOR | |
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SHC-1700, 2100
POWERHEAD



SHC-2400, HCA-2400
POWERHEAD



24

1. **SAFETY MANUAL** - Read and understand this manual before operation. Keep manual in a safe location as a reference for safe operating techniques.
2. **OPERATOR'S MANUAL** - Read and understand this manual before operation. Keep manual in a safe location for future reference, i.e., operation, maintenance, storage and specifications.
3. **POWER HEAD** - Factory Assembled. Includes the Engine, Clutch, Fuel System, Ignition System and Starter.
4. **FRONT HANDFRONT HANDLE (SHC-1700,SHC-2100)** - SHC-1700 and SHC-2100 handle contains an interlock switch that stops the engine whenever handle is released.
5. **GRIP,FRONT (LEFT) HAND, (SHC-2400,HCA-2400)** - Cushioned grip for Left Hand.
6. **"SLIDE SWITCH"** - mounted on top of the Throttle Trigger Housing. Move switch FORWARD to RUN, BACK to STOP.
7. **IDLE START INTERLOCK** - HCA Model. This lever must be held during starting and idle operation when throttle trigger is disengaged, otherwise engine will stop. The engine **does not stop** when trigger interlock lever is released and throttle trigger is engaged during throttle operation. Operation of the throttle trigger is prevented unless interlock lever is engaged.
8. **THROTTLE TRIGGER** - Spring loaded to return to idle when released. During acceleration, depress gradually for best operating technique. DO NOT hold trigger while starting.
9. **BLADES** - Double reciprocating blades mounted to a blade support bar. Double sided blades, are capable of cutting on either side of the blade.
10. **AIR CLEANER** - Contains replaceable filter element.
11. **PURGE BULB** - Before starting and after filling the fuel tank, pump purge bulb 3-4 times or until a steady stream of fresh fuel is visible through the "clear" fuel return line.
12. **CHOKE CONTROL** - The choke control lever is located on the top of the air filter case. Lift the lever UP to "COLD START" to close the choke for Cold Starting. Push the lever all the way DOWN for the "RUN" position.
13. **STARTER HANDLE** - Pull handle slowly until starter engages, then quickly and firmly. DO NOT pull rope all the way out or allow the handle to snap back, damage to the recoil starter will occur.
14. **FUEL TANK** - Contains fuel and fuel filter.
15. **FUEL TANK CAP** - Covers and seals fuel tank opening.
16. **SPARK PLUG** - .
17. **MUFFLER/SPARK ARRESTOR** - The muffler controls the exhaust noise while the spark arrestor prevents hot, glowing particles of carbon from leaving the muffler where they could possibly start a fire. Built in accordance with SAEJ335, this product is approved for use on U.S. Forest Land and within the states of California, Maine, Oregon and Washington if the spark arresting screen is in place and in good repair.
18. **GEAR HOUSING ASSEMBLY (HCA-2400)** - Gear housing assembly cutting angle is adjustable through a 90° arc.
19. **GEAR HOUSING ASSEMBLY (SHC-1700, 2100, 2400)** - Gear housing assembly fixed straight extension.
20. **DRIVE SHAFT ASSEMBLY** - Contains the Flexible Drive Cable.
21. **BLADE ANGLE INDEXING LEVER (HCA-2400)** - Spring loaded lever that engages with a notch every 15 degrees, from the straight (in line with drive shaft) position to right angle with the drive shaft.
22. **BLADE ANGLE LOCKING LEVER (HCA-2400)** - The lever DOES NOT secure gear box angle setting. This lever MUST be placed in the engaged (tight) position to remove internal gear play before operating the hedge clipper.
23. **SHOULDER HARNESS** - Standard - HCA-2400. An adjustable strap that suspends the unit from the operator.
24. **HEDGE CLIPPER SAFETY VIDEO** - P/N 99922202800 (Not included with unit and English version only) is available for your review and purchase at a cost of \$5.00 from ECHO, INC. or any authorized ECHO dealer. The video overviews safety precautions and proper operating techniques provided in detail in the Safety Manual, and is supplemental to the Safety Manual. Read and understand the Safety Manual for complete information on safe operation.

SPECIFICATIONS

| MODEL | SHC-1700 TYPE 1 SHC-1700 TYPE 1E | SHC-2100 TYPE 1 SHC-2100 TYPE 1E | SHC-2400 TYPE 1 SHC-2400 TYPE 1E | HCA-2400 TYPE1E |
|----------------------|---|-------------------------------------|-------------------------------------|---------------------------|
| Length | 1335 mm (52.5 in.) | 1816 mm (71.5 in.) | 2190 mm (86.3 in.) | 2034 mm (80.1 in.) |
| Width | 216 mm (8.5 in.) | 216 mm (8.5 in.) | 216 mm (8.5 in.) | 225 mm (8.9 in.) |
| Height | 235 mm (9.3 in.) | 235 mm (9.3 in.) | 229 mm (9.0 in.) | 223 mm (8.8 in.) |
| Weight (dry) | 5.5 kg (12.1 lb.) | 5.6 kg (12.3 lb.) | 5.7 kg (12.6 lb.) | 6.2 kg (13.7 lb.) |
| Type of Engine | Air cooled, two-stroke, single cylinder gasoline engine | | | |
| Displacement | 21.2 cc (1.29 cu. in.) | 21.2 cc (1.29 cu. in.) | 23.6 cc (1.44 cu. in.) | 23.6 cc (1.44 cu. in.) |
| Bore | 32.2 mm (1.27 in.) | 32.2 mm (1.27 in.) | 34.0 mm (1.34 in.) | 34.0 mm (1.34 in.) |
| Stroke | 26.0 mm (1.04 in.) | | | |
| Exhaust | Spark Arrestor Muffler | | | |
| Carburetor | Diaphragm w/primer | | | |
| Ignition System | Flywheel Magneto, CDI (capacitor discharge ignition) with ESG | | | |
| Spark Plug | NGK BPM-7Y | | | |
| Fuel | Mixed Fuel - Gasoline & Oil | | | |
| Fuel/Oil Ratio | 50:1 Ratio using ECHO Hi_Performance Oil | | | |
| Gasoline | 89 Octane unleaded. DO NOT use fuel containing methyl alcohol, more than 10% ethyl alcohol or 15% MTBE. | | | |
| Oil | ECHO 50:1 Two-Stroke Air-Cooled Engine Oil | | | |
| Fuel Tank Capacity | 0.5 lit. (17.0 US fl. oz.) | | | |
| Starter System | Automatic Recoil Starter | | | |
| Clutch | Centrifugal Type | | | |
| Gear Case Ratio | 6.36:1 | 6.36:1 | 6.36:1 | 3.5:1 |
| Cutter | Double Reciprocating Blade - Double Edge | | | |
| Length | 420 mm (16.5 in.) | 524 mm (20.5 in.) | 524 mm (20.5 in.) | 450 mm (17.7 in.) |
| Pitch | 35 mm (1.4 in.) | | | |
| Engine Idle | 2800 - 3200 RPM | | | |
| Engine Full Throttle | 8000 - 10000 RPM | | | |

ASSEMBLY (HCA-2400, SHC-2100, 2400)

SHC-1700 is Factory Assembled in the box.

Gear Box/Drive Shaft

(SHC-2100, 2400, HCA-2400)

Tools Required: 8MM Open End Wrench, Screwdriver

Parts Required: Power Head/Drive Shaft Assembly and Gear Box/Blade Assembly.

NOTE

Hedge Clipper Blades are very sharp. Wear gloves to protect hands.

1. Slide the Gear Housing Assembly on the Drive Shaft. Be certain the Flex Drive Shaft engages the hole in Driver Gear.
2. Align the locating screw (A) with the locating hole (B) in the Drive Shaft Housing, tighten screw (A) and clamping screws (C).

Power Head/Drive Shaft (SHC-2400, HCA-2400 Only)

1. Stand engine upright on a level surface.
2. Loosen the two bolts at engine drive shaft end.
3. Carefully fit drive shaft assembly to engine, making sure that inner drive shaft engages into clutch mount.

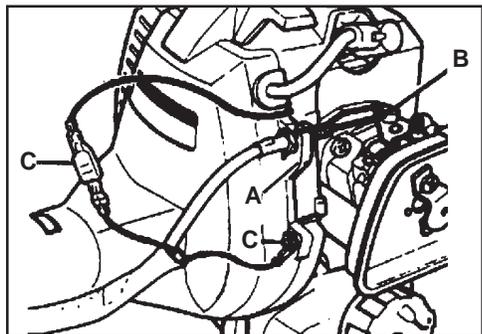
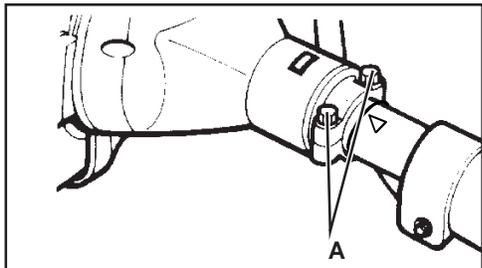
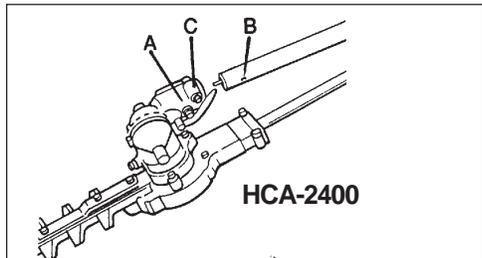
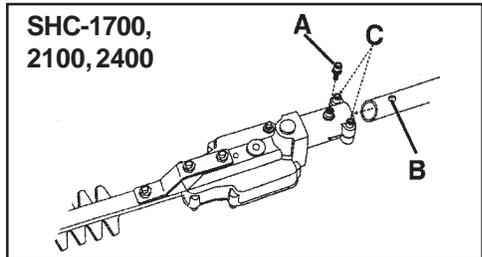
NOTE

The arrow on the drive shaft housing must be in contact with the engine (arrow Δ on drive shaft indicates line).

4. Rotate the drive shaft housing until arrows are centered with engine bearing housing.
5. Tighten bolts.

Throttle Linkage Installation

1. Close choke and remove air filter cover.
2. Loosen nut (A) and place threaded cable housing in bracket slot. If there are flat washers between the tow nuts, place one on each side of the bracket. Finger tighten nut (A).
3. Place inner cable in slot of carburetor swivel (B) and tighten nut (A).
4. Check to make sure throttle operates freely, opens completely and returns to idle.
5. Connect ignitions leads (C). HCA-2400 has one spade terminal pair and on ring terminal which attaches under fan cover screw.
6. Re-install air cleaner cover.



PRE-OPERATION

FUEL

Fuel Requirements

Gasoline - Use 89 Octane [$\frac{R+M}{2}$] (mid-grade or higher) gasoline or gasohol known to be good quality. Gasohol may contain up to 10% Ethyl (grain) alcohol or 15% MTBE (methyl tertiary-butyl ether). Gasohol containing methanol (wood alcohol) is **NOT** approved.

Two Stroke Oil - A two-stroke engine oil meeting ISO-L-EGD Standard (ISO/CD 13738), must be used. Echo brand Premium 50:1 oil meets this standard. Engine problems due to inadequate lubrication caused by failure to use an ISO-L-EGD approved oil, such as Echo Premium 50:1 Two-stroke Oil, will void the two-stroke engine warranty. (Emission related parts only are covered for two years, regardless of two-stroke oil used, per the statement listed in the EPA Phase I/California Emission Defect Warranty Explanation.)

Mixing - Follow directions on the oil container.

Handling Fuel

WARNING DANGER

Fuel is **VERY** flammable. Use extreme care when mixing, storing or handling or serious personal injury may result.

- Use an approved fuel container.
- DO NOT smoke near fuel.
- DO NOT allow flames or sparks near fuel.
- Fuel tanks/cans may be under pressure. Always loosen fuel caps slowly allowing pressure to equalize.
- NEVER refuel a unit when the engine is HOT!
- NEVER refuel a unit with the engine running.
- DO NOT fill fuel tanks indoors. ALWAYS fill fuel tanks outdoors over bare ground.

After Refueling;

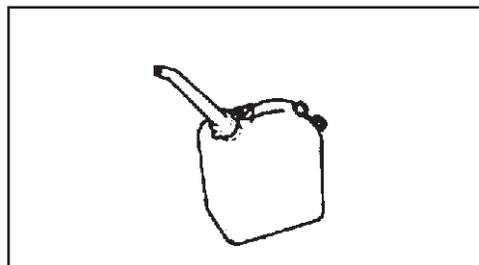
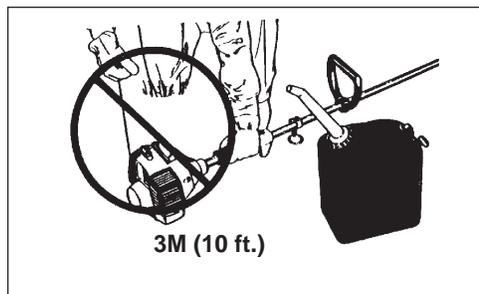
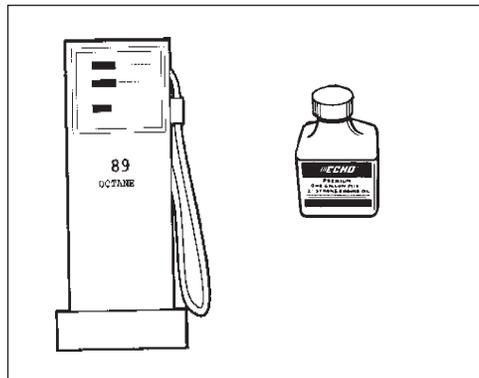
- Wipe any spilled fuel from the unit.
- Move at least 3M (10 ft.) from refueling location before starting.

After Use;

- DO NOT store a unit with fuel in its tank. Leaks can occur. Return unused fuel to an approved fuel storage container.

Storage

Fuel storage laws vary by locality. Contact your local government for the laws affecting your area. As a precaution, store fuel in an approved, air tight container. Store in a well ventilated, unoccupied building, away from sparks and flames. Do not store fuel longer than 30 days.



IMPORTANT

Stored fuel ages. Do not mix more fuel than you expect to use in thirty (30) days, ninety (90) days when a fuel stabilizer is added.

IMPORTANT

Stored two-stroke fuel may separate. ALWAYS shake fuel container thoroughly before each use.

| | | | | | | |
|----|----|----|----|----|----|----|
| S | M | T | W | T | F | S |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| 29 | 30 | 31 | | | | |

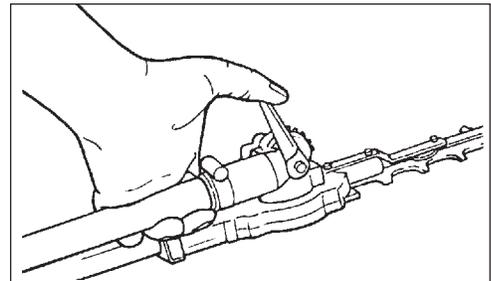
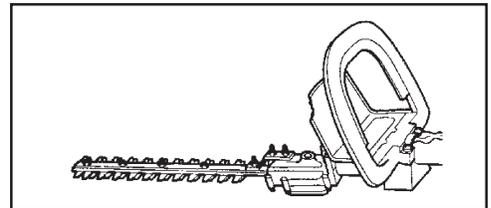
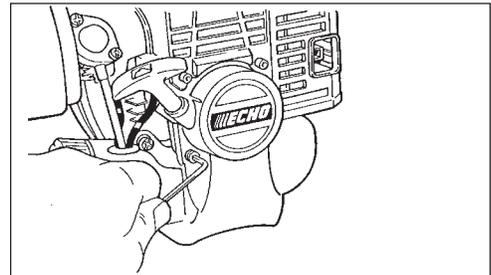
EQUIPMENT CHECK

Before operation a complete check of the unit must be performed;

- Check unit for loose/missing nuts, bolts and screws. Tighten and/or replace as needed.
- Inspect fuel lines, tank and area around carburetor for fuel leaks. DO NOT operate unit if leaks are found.
- Inspect hand guard for damage. Replace if damaged or missing.
- Check that the blade assembly is firmly attached and in safe operating condition. Dull, loose or damaged blades should not be used.
- Tighten the Blade angle adjustment lever before operating the HCA-2400.
- Check that loop (front) handle and shoulder strap/ or shoulder/waist harness are adjusted for safe, comfortable operation.

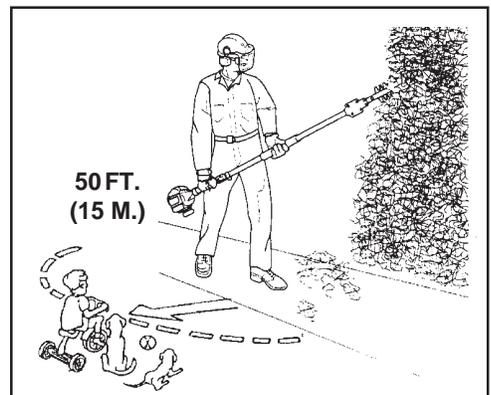
IMPORTANT

Always store and transport Shaft Hedge Clipper in a stable, horizontal position. Support gear case and cutting blades to prevent excessive flexing, which may cause damage to the cutting attachment.



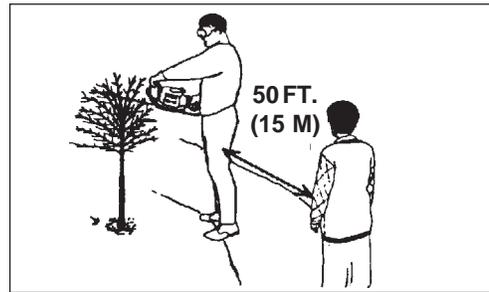
DETERMINE OPERATION AREA

- Review the area to be trimmed. Look for hazards that could contribute to unsafe conditions.
- Spectators and fellow workers must be warned, and children and animals prevented from coming nearer than 50 ft. (15 M) while the trimmer is in use.



OPERATION (SHC Models)

- Before starting the unit, equip yourself and any other person working within the 50 ft. (15 M) Safety Zone with the required Protective Equipment and clothing.

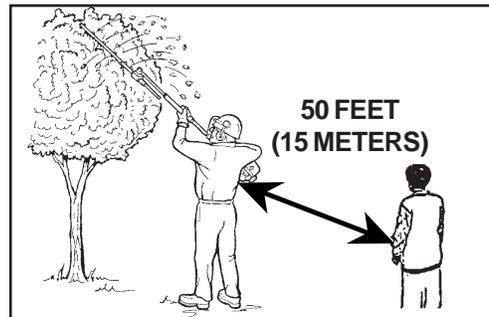


- During operation, the complete unit, especially the gear box, drive shaft housing and power head muffler area may become very hot, too hot to touch. Avoid contact during and immediately after operation.



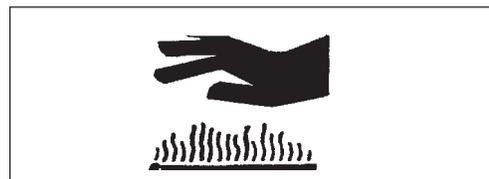
OPERATION (HCA Models)

- Before starting the unit, equip yourself and any other person working within the 50 ft. (15 M) Safety Zone with the required Protective Equipment and clothing.



- Check that loop (front) handle and shoulder strap/ or shoulder/ waist harness are adjusted for safe, comfortable operation.

- During operation, the complete unit, especially the gear box, drive shaft housing and power head muffler area may become very hot, too hot to touch. Avoid contact during and immediately after operation.



- Never adjust blade angle of HCA while standing

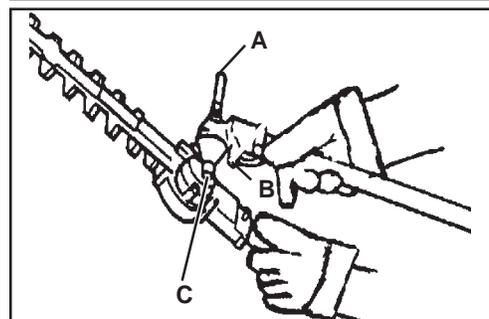


- Only adjust cutting angle with HCA resting flat on the ground, with the engine stop switch in the "STOP" position.

- Adjust cutting angle by moving locking lever (A) up. Depress blade indexing lever (B) and change blade angle with rear cutter assembly handle. Release indexing lever into notch. Move locking lever down to completely engage internal gears.

IMPORTANT

Locking lever (A) does not secure gear box angle setting. Moving lever in the down position reduces internal play in the gear box. Do not over tighten castle nut (C) to insure gear box angle setting tightness because damage to internal gears will occur. If the lever is loose or very tight, adjust nut (C) for snug 90° movement.



STARTING COLD ENGINE

WARNING DANGER

Blades should not move at idle. If blades move, readjust carburetor according to Carburetor Adjustment instructions in the manual or see your ECHO dealer, otherwise serious personal injury may result.

1. *Ignition Switch - Start/Run.* (All Models)
Move Ignition Switch lever/ button away from the STOP position.
2. *Close Choke - Cold Start.*
- SHC-1700, 2100 - Push choke lever forward to Cold Start.
- SHC-2400, HCA-2400 - Pull choke lever up to Cold Start position.
3. *Primer - Pump Bulb.* (All Models)
Pump primer bulb until fuel is visible in the "Clear" fuel return line.
- 4A. *Starting* (SHC-1700, 2100)
Lay the trimmer on a flat, clear area. Grip front handle interlock. Place knee (light pressure) against upper drive shaft to hold power head on the ground. Pull starter rope until engine fires.

NOTE

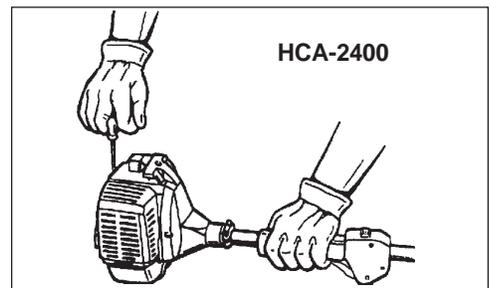
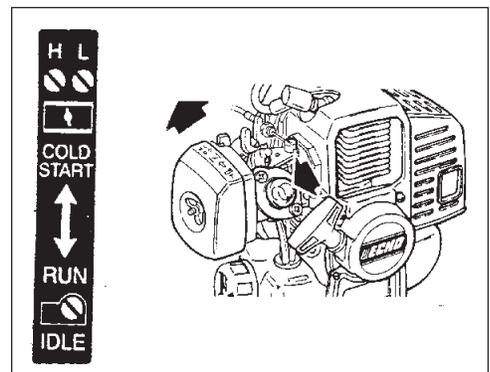
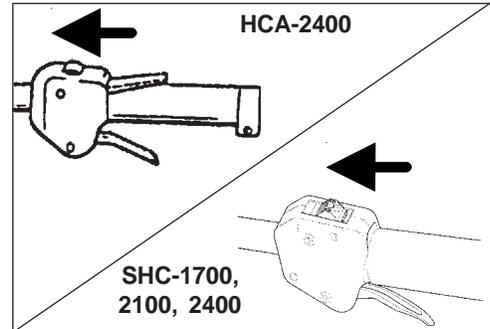
Ignition Interlock Lever in front handle must be gripped for the engine to start and/or to continue to run.

- 4B. *Starting* (SHC-2400)
Lay the trimmer on a flat, clear area, clear area and pull starter rope until engine fires.
- 4C. *Starting* (HCA-2400)
Lay the trimmer on a flat, clear area. Firmly grip the rear handle and depress and hold the "Ignition/Throttle Interlock". Pull the starter rope until engine fires.

NOTE

Idle/Start Interlock" must be held tight against the grip or engine will stop at idle.

5. *Open Choke - Run* (All Models)
Push choke lever back to "OPEN - RUN" position. Restart engine if necessary and allow to warm up running at idle for several minutes.



STARTING WARM ENGINE

The starting procedure is the same as Cold Start except DO NOT close the choke.

NOTE

If engine does not start after 4 pulls, use Cold Start Procedure.

WARNING DANGER

Blades should not move at idle. If blades move, readjust carburetor according to Carburetor Adjustment instructions in the manual or see your ECHO dealer, otherwise serious personal injury may result.

1. *Ignition Switch - Start/Run.* (All Models)
Move Ignition Switch lever/ button away from the STOP position.
2. *Primer - Pump Bulb.* (All Models)
Pump primer bulb until fuel is visible in the "Clear" fuel return line.

3A. Starting (SHC-1700, 2100)

Lay the trimmer on a flat, clear area. Grip front handle interlock. Place knee (light pressure) against upper drive shaft to hold power head on the ground. Pull starter rope until engine fires.

3B. Starting (SHC-2400)

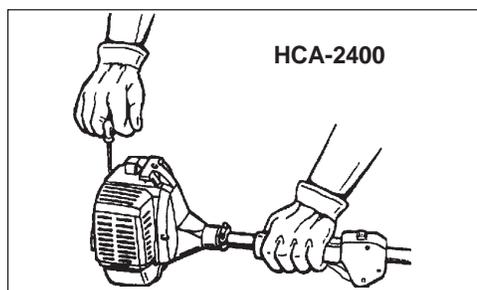
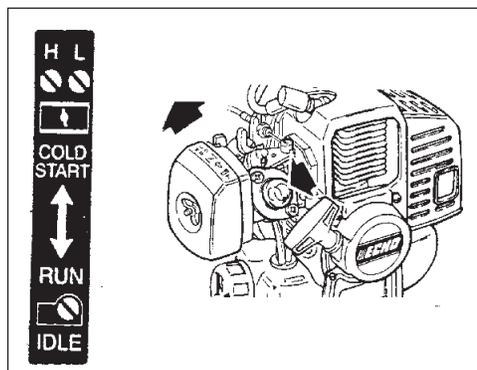
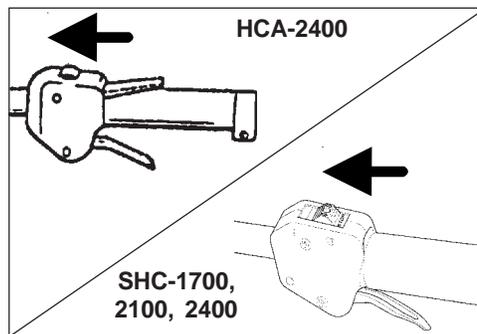
Lay the trimmer on a flat, clear area, clear area and pull starter rope until engine fires.

3C. Starting (HCA-2400)

Lay the trimmer on a flat, clear area. Firmly grip the rear handle and depress and hold the "Ignition/Throttle Interlock". Pull the starter rope until engine fires.

NOTE

"Idle/Start Interlock" must be held tight against the grip or engine will stop at idle.

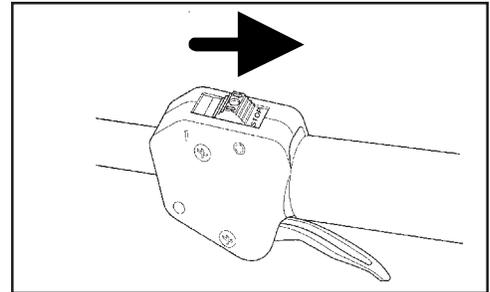


STOPPING ENGINE (SHC UNITS)

1. *Release Throttle.* Allow engine to idle for a minute
2. *Ignition Switch - STOP.* Move ignition switch toggle/slide switch to STOP position.

NOTE

SHC-1700, 2100 with front handle interlock will automatically shut unit off when released.

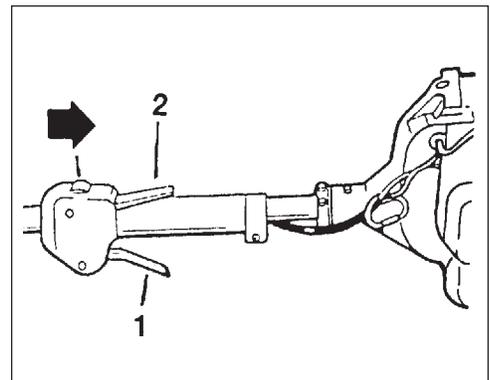


WARNING **DANGER**

If engine does not stop when stop switch is moved to STOP position, close choke - COLD START position - to stall engine. Have your ECHO dealer repair stop switch before using hedge clipper again or serious personal injury may result.

STOPPING ENGINE (HCA-2400)

1. *Release Throttle.* Allow engine to idle down and blades stop moving with throttle trigger disengaged.
2. *Release "Idle Start Interlock -* Move "Ignition Switch" to STOP position.



WARNING **DANGER**

The engine **does not stop** when idle start lever is released and throttle trigger is engaged. Release throttle trigger and allow engine to idle down and blades stop moving before releasing idle start interlock lever, otherwise serious personal injury may result.

WARNING **DANGER**

If engine does not stop during step 2, close choke - COLD START position - to stall engine. Have your ECHO dealer repair Stop Switch before using hedge clipper again or serious personal injury may result.

MAINTENANCE

Your ECHO product is designed to provide many hours of trouble free service. Regular scheduled maintenance will help achieve that goal. If you are unsure or are not equipped with the necessary tools, you may want to take your unit to an ECHO Service Dealer for maintenance. To help you decide whether you want to DO-IT-YOURSELF or have the ECHO Dealer do it, each maintenance task has been graded. If the task is not listed, see your ECHO Dealer for repairs.

SKILL LEVEL

- Level 1**= Easy to do. Most required tools come with unit.
- Level 2**= Moderate difficulty. Some specialized tools may be required.
- Level 3**= Experience required. Specialized tools are required.

ECHO offers **REPOWER™** Maintenance Kits and Parts to make your maintenance job easier. Just below each task heading are listed the various part numbers required for that task. See your ECHO dealer for these parts.

MAINTENANCE INTERVALS

| Component/System | Maintenance Procedure | Before Use | Every Refuel | Daily or Every 4 Hours | 3 Months or 100 Hours | 6 Months or 300 Hours | Yearly or 600 Hours |
|------------------------|-------------------------|---|--------------|------------------------|-----------------------|-----------------------|---------------------|
| Air Filter | Clean / Replace | I | | I | R* | | |
| Fuel Strainer | Clean/Replace | | | | I | | |
| Fuel Line | Inspect | | | | I | | |
| Carburetor | Inspect/Rebuild/Replace | | | | | I | R (1) |
| Choke System | Inspect/Clean/Replace | | I | | | | |
| Cooling System | Inspect/Clean | I | | I | | | |
| Muffler Spark Arrestor | Inspect/Clean | | | | I | | |
| Drive Shaft | Grease | | | | I** | | |
| Gear Housing | Grease | | | | I** | | |
| Recoil Starter Rope | Inspect/Clean | I | | | | | |
| Fuel Leaks | Inspect/Replace | I | | | | | |
| Spark Plug | Clean / Replace | | | | I | R | |
| Ignition System | Clean/Replace | No Maintenance required for coil and flywheel | | | | | |
| Screws/Nuts/Bolts | Inspect/Tighten/Replace | I | | | | | |

I = Inspect / R = Replace

IMPORTANT

Time intervals shown are maximum. Actual use and your experience will determine the frequency of required maintenance.

(1) Replacement will be required for commercial use after 600 hours. For Consumer use, cleaning every 6 months is required. Cleaning includes Rebuild Kits.

** Commercial - grease weekly or ever 25 hours of use. Consumer - grease every 25 hours of use.

AIR FILTER

Level 1.

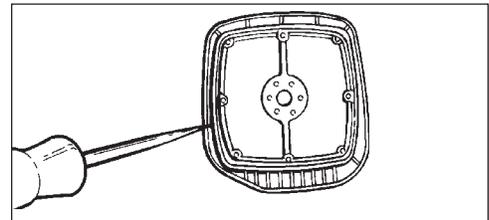
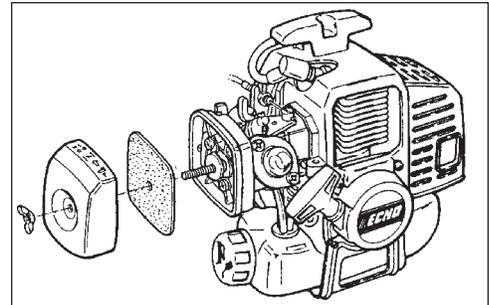
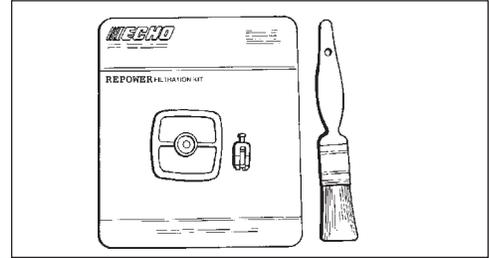
Tools required: Cleaning brush, 1" or 2" medium bristle paint brush.

Parts required: (SHC Models) 90008 REPOWER™ AIR & FUEL FILTER KIT.
(HCA-2400) 90030 REPOWER™ AIR & FUEL FILTER KIT.

1. Close choke (Cold Start Position). This prevents dirt from entering the carburetor throat when the air filter is removed. Brush accumulated dirt from the air cleaner area.
2. Remove the air cleaner cover. Clean and inspect the element for damage. If element is fuel soaked and very dirty, replace.
3. If element can be cleaned and reused, be certain it:
 - properly fits the cavity in the air cleaner cover.
 - is installed with the original side out.

NOTE

Carburetor adjustment may be needed after air filter cleaning/replacement. See Carburetor Adjustment Section.



FUEL FILTER

Level 1.

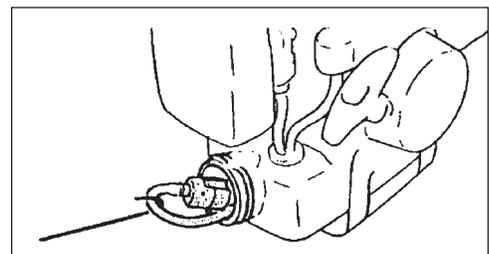
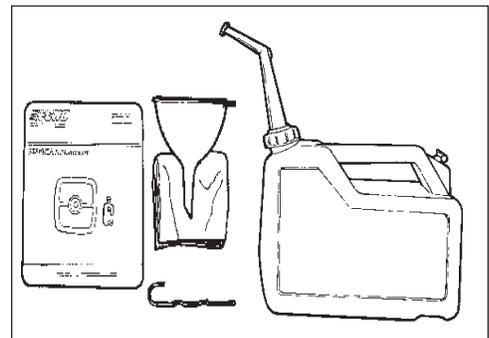
Tools required: Fuel line hook. 8"-10" (203-254 mm) length of wire with one end bent into a hook. Clean rag, funnel, and an approved fuel container.

Parts Required: (SHC Models) 90008 REPOWER AIR & FUEL FILTER KIT.
(HCA-2400) 90030 REPOWER AIR & FUEL FILTER KIT.

WARNING DANGER

Fuel is **VERY** flammable. Use extreme care when mixing, storing or handling or serious personal injury may result.

1. Use a clean rag to remove loose dirt from around fuel cap and empty fuel tank.
2. Use the "fuel line hook" to pull the fuel line and filter from the tank.
3. Remove the filter from the line and install the new filter.



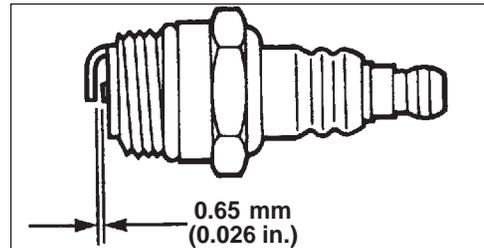
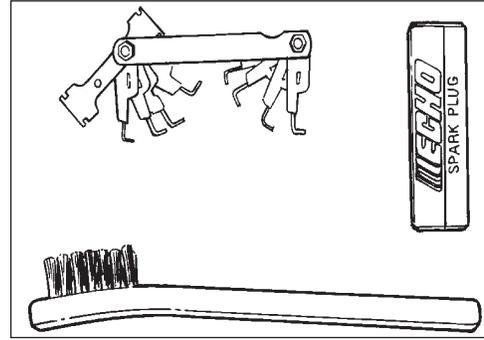
SPARK PLUG

Level 2.

Tools Required: T-Wrench. Feeler gauge. Preferably a wire gauge.
Brush.

Parts Required: Spark Plug, Champion CJ-7Y or NGK BPM-7A

1. Remove spark plug and check for fouling, worn and rounded center electrode.
2. Clean the plug or replace with a new one. DO NOT sand blast to clean. Remaining sand will damage engine.
3. Adjust spark plug gap by bending outer electrode.



EXHAUST SYSTEM

Carbon Removal

Spark Arrestor Screen Replacement

Cleaning Muffler

Cleaning Exhaust Port

Level 3.

Tools Required: 3/4 " Spark Plug deep socket screw driver. 4MM Allen wrench. Soft metal brush. Wooden carbon scraper.

Parts Required: SHC Models Spark Arrestor Screen P/N 14586240630
HCA-2400 Spark Arrestor Screen P/N 14586251030

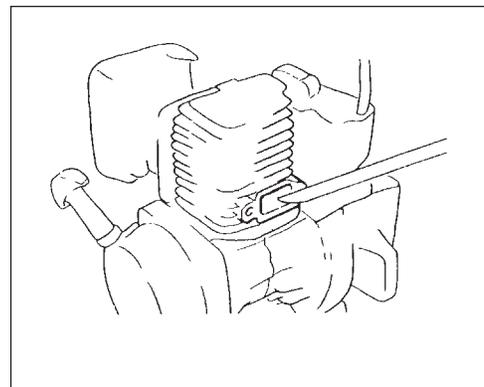
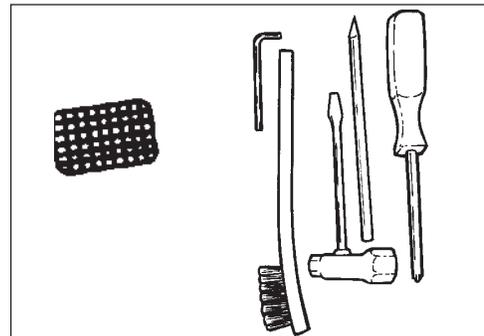
Exhaust Port

1. Remove engine cover (A). See "Cleaning Cooling System" for step by step instructions.
2. Remove muffler.
3. Place piston at Top Dead Center (TDC) to prevent carbon/dirt from entering cylinder.
4. Inspect exhaust port for carbon buildup and clean using a wooden carbon scraper.

NOTE

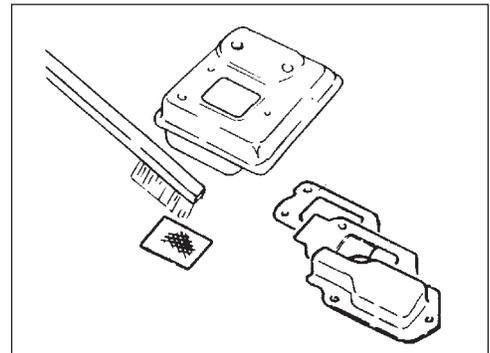
DO NOT use a metal tool to remove carbon deposits and use extreme care not to scratch piston.

5. Check that all loose carbon is removed from exhaust port.



Spark Arrestor Screen

1. Remove screen holder and gasket from muffler body.
2. Clean carbon deposits from screen and muffler components.
3. Replace screen if it is cracked, plugged or has holes burned through.



COOLING SYSTEM CLEANING

Level 3.

Tools required: Cross Head Screwdriver, 3 mm Hex wrench, 4 mm Hex wrench, Pointed Wood Stick, Cleaning Brush, 1"-2" medium bristle paint brush.

Parts Required: None.

IMPORTANT

To maintain proper engine operating temperatures, cooling air must pass freely through the cylinder fin area. This flow of air carries combustion heat away from the engine.

Overheating and engine seizure can occur when:

- Air intakes are blocked, preventing cooling air from reaching the cylinder.
- Dust and grass build up on the outside of the cylinder. This build up insulates the engine and prevents the heat from leaving.

Removal of cooling passage blockages or cleaning of cooling fins is considered "Normal Maintenance". Any failure attributed to lack of maintenance is not warranted.

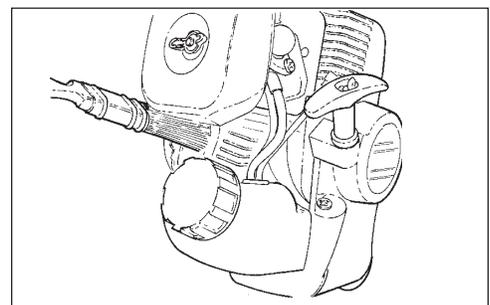
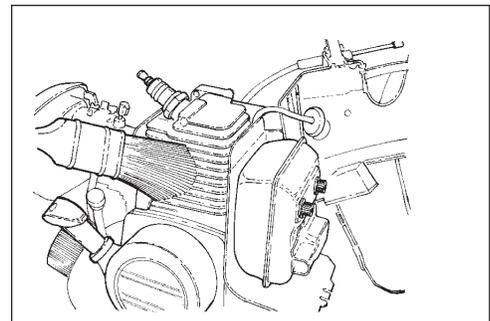
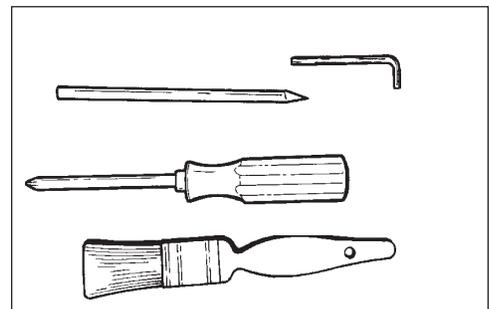
1. Remove spark plug lead from the spark plug and throttle linkage end from the carburetor swivel.
2. Remove the four screws that retain the engine cover. Two at the top of the starter, two on either side of the front. Lift the cover from the engine and lay to the front of the hedge clipper.

NOTE

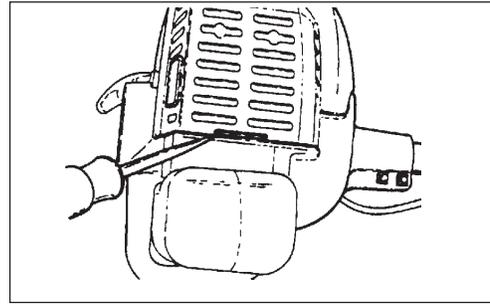
The throttle cable remains assembled to the engine cover and the spark plug lead and grommet remain installed.

NOTE

DO NOT use a metal scraper to remove dirt from the cylinder fins.



3. Use the wooden stick or brush to remove dirt from the cylinder fins.
4. Remove grass and leaves from the grid between the recoil starter and fuel tank.
5. When installing the engine cover, be certain the tab of the metal deflector shield is in the slot of the cover.



CARBURETOR ADJUSTMENT

Type 1E Models

Level 2.

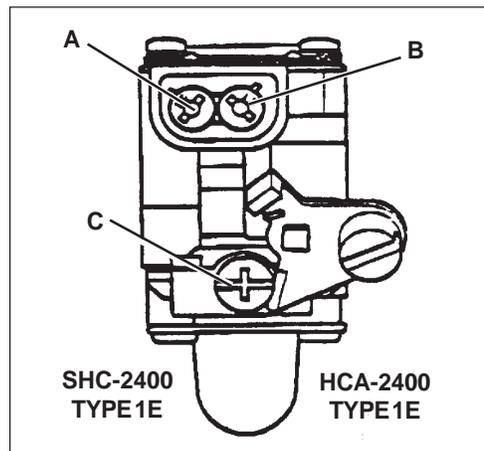
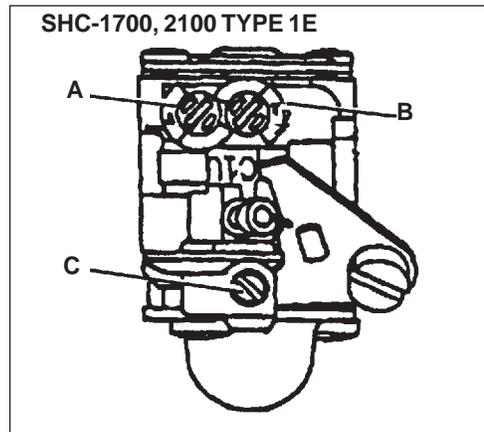
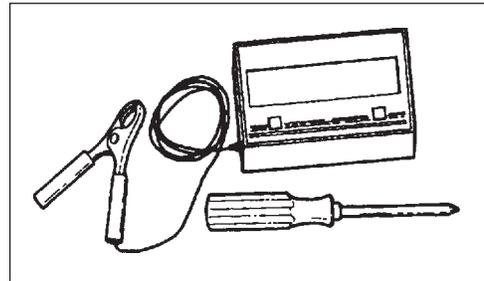
Tools required: Screwdriver, Tachometer (ECHO P/N 99051130017).

Parts required: None.

NOTE

Every unit is run at the factory and the carburetor is set in compliance with EPA Phase 1 and California Emission Regulations. In addition, the carburetor is equipped with HI and LO needle adjustment limiters that prevent settings outside acceptable limits.

1. Before adjusting the carburetor, clean or replace the air filter and spark arrester screen.
2. Start engine and run for several minutes to reach operating temperature.
3. Stop engine. Turn HI speed needle (A) CCW (counter clockwise) to stop. Turn LO speed needle (B) midway between full CCW and CW (clockwise) stops.
4. Idle Speed Adjustment.
 - Start engine and turn "idle" speed adjustment screw (C) CW until the blades begin to move, then turn the screw CCW until blades stop moving. Turn screw CCW an additional 1/4 turn.
5. Accelerate to full throttle for 2-3 seconds to clear excess fuel from engine then return to idle. Accelerate to full throttle to check for smooth transition from idle to full throttle. If engine hesitates, turn LO needle (B) CCW an additional 1/8 turn and repeat acceleration. Continue adjusting until smooth acceleration results.
6. Check HI speed RPM at W.O.T. (Wide Open Throttle). HI speed RPM should be set to specifications found on page 12 "Specifications" of this manual.



7. Check idle speed and reset if necessary. If a tachometer is available, idle speed should be set to the specification found on page 12 "Specifications" of this manual.

WARNING DANGER

When carburetor adjustment is completed, blades should not move at idle, otherwise serious personal injury may result.

CARBURETOR ADJUSTMENT

Type 1 Models

Idle speed Adjustment (Unit running 2-3 minutes)

Turn "idle" speed adjustment screw CW (clockwise) until cutting attachment begins to turn, then turn screw out CCW (counter clockwise) until attachment stops turning. Turn screw out, CCW (counter clockwise) an additional 1/4 turn.

WARNING DANGER

Shaft Hedge Clipper blades must not move when unit is idling, otherwise serious personal injury may result.

NOTE

If carburetor has limiter caps follow "Carburetor Adjustment" procedures for Emission models on previous page.

Basic Setting

1. Stop engine and turn both LO (B) and HI (A) needles in, CW until they stop and are lightly seated.

IMPORTANT

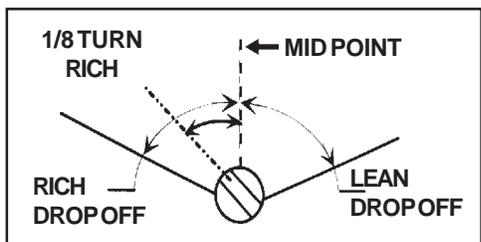
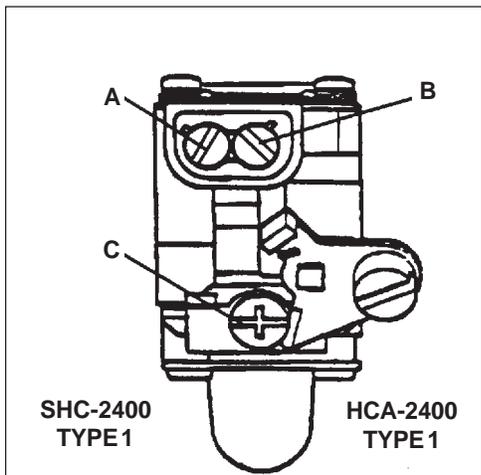
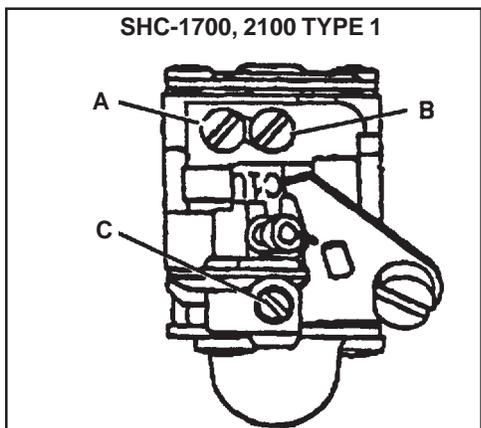
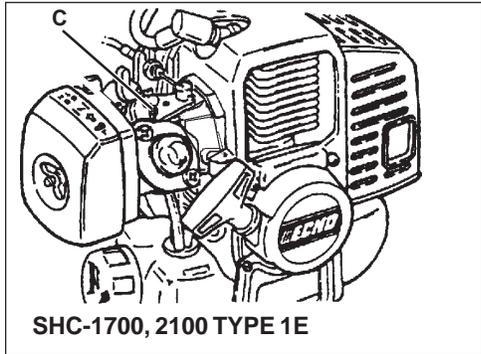
DO NOT over tighten needles. Forcing them to tighten will damage the carburetor.

2. Turn LO needle (B) out, CCW 1-1/4 turns. Turn HI needle (A) out CCW 2-3/4 turns.

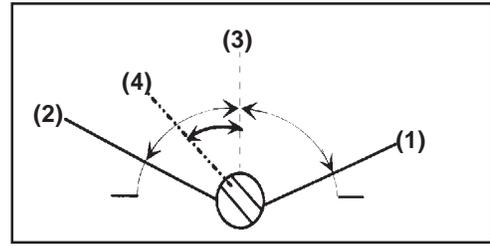
Fine Tuning

(Requires Accurate Tachometer ECHO P/N 99051130017)

1. Start engine and allow to warm to operating temperature (minimum 2 - 3 minutes) varying engine speed from idle to full throttle.
2. Always begin fine tuning with LO needle (B).
 - a. Lean drop-off - With engine idling, turn LO needle slowly CW (in) to lean drop-off point. RPM will increase, then abruptly drop-off. (1) Note this position.
 - b. Rich drop-off - With engine idling, slowly turn LO needle CCW (out) to rich drop-off point. RPM will increase then gradually slow and drop-off. (2) Note this position.



- c. Final setting - Set needle at mid point between lean rich drop-off points. (3)
 - d. Turn 1/8 turn CCW (out) making mixture slightly richer. (4)
3. High speed adjustment.
Adjust HI needle (A) with tachometer to achieve the specifications found on page 12 "Specifications" of this manual.
 4. Check idle speed and reset if necessary. Using a tachometer, idle speed should be set to the specification found on page 12 "Specifications" of this manual.



WARNING DANGER

When carburetor adjustment is completed blades should not move at idle, otherwise serious personal injury may result.

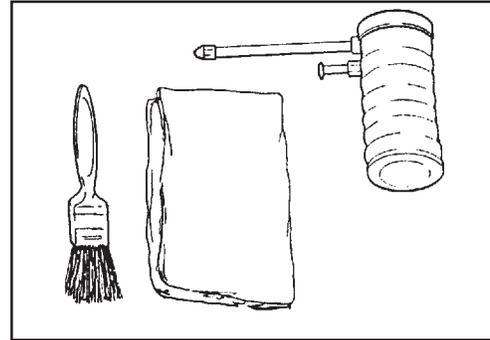
LUBRICATION

Blades

Level 1.

Tools Required: Clean Rag, Brush, Oil Can, (2) 10 mm wrenches.

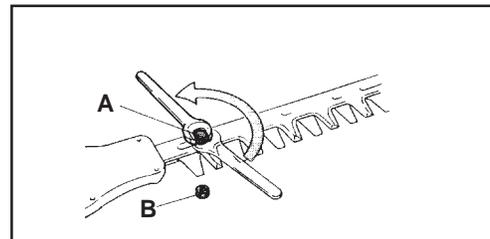
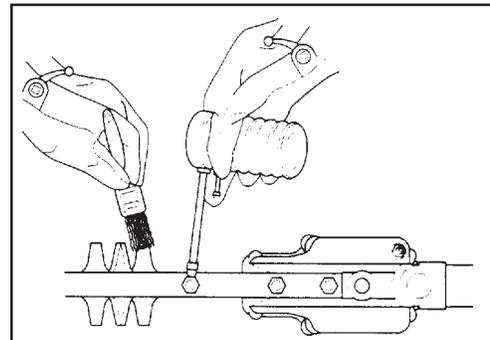
Parts Required: 20W Engine Oil (lubrication), 50-50 mixture of kerosene and 20W oil (cleaning).



WARNING DANGER

Shaft Hedge Clipper blades are very sharp. Wear gloves to protect hands, otherwise serious personal injury may result.

1. Brush loose debris from blade and coat both sides of blade with the 50-50 cleaning mixture.
2. Allow cleaning mixture to soften the remaining gummy residue then wipe it from the blade.
3. Apply clean oil to the entire length of the blade. Be certain the blade bolts are lubricated.
4. Wipe excess oil from the blade before putting the unit back in service.
5. Check blade tightness. Tighten blade bolts (A) until snug with 10 mm wrench. Loosen bolts 1/2 turn. Hold bolts (A) from turning and tighten locknuts (B) with other 10 mm wrench.



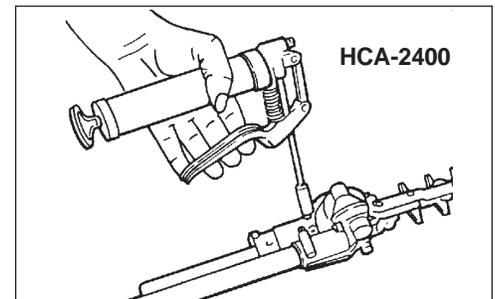
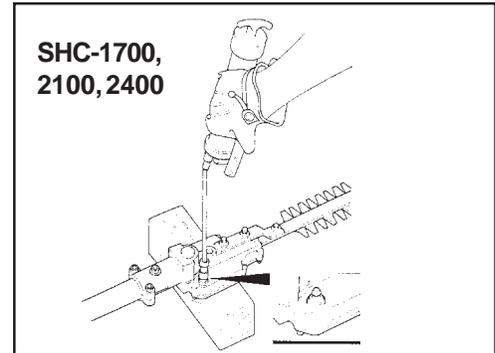
SHC-1700, 2100, 2400, HCA-2400

Tools required: Grease Gun with Lithium Grease, Rag.

Parts required: Lithium Based Grease.

1. Clean dirt from grease fittings.

2. Carefully pump grease in each fitting. **DO NOT** force grease. Too much pressure will force grease past seals and cause damage. **Apply 1-2 pumps of grease every 15-20 hours of operation.**



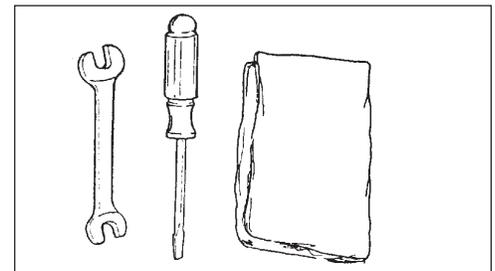
Drive Shaft Assembly

NOTE

Hedge Clipper drive shaft should be greased every 25-50 hours of operation.

Tools required: 8 mm Open End Wrench, Screwdriver, Clean Rag, Small Brush.

Parts required: Lithium Based Grease.



WARNING DANGER

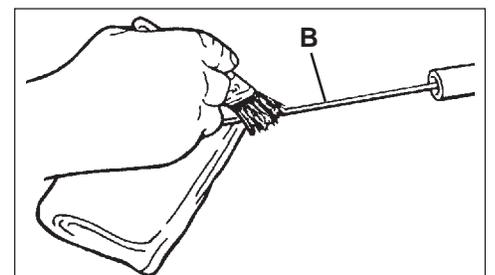
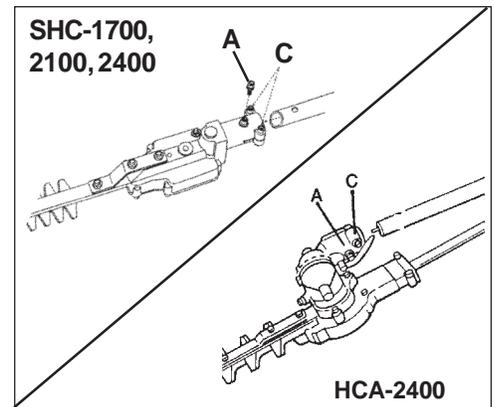
Shaft Hedge Clipper blades are very sharp. Wear gloves to protect hands, otherwise serious personal injury may result.

1. Loosen gear housing assembly locating screw (A) and mounting screws (C). Remove the gear box from the drive shaft housing.

2. Pull the drive shaft (B) from the housing, wipe clean and re-coat with a thin coating [1/2 oz. (15 ml)] of lithium based grease.

3. Slide the drive shaft back in the drive housing being careful not to get dirt on the flex shaft.

4. Install the gear housing assembly.



SHARPENING BLADES

Level 1.

Tools required: Flatfile, Small Screwdriver

Parts required: Gear Box gasket, Lithium Based Grease.

NOTE

Blade sharpening requires removal of blades from the unit. Step by step instruction are included in the Service Manual that apply to your model.

NOTE

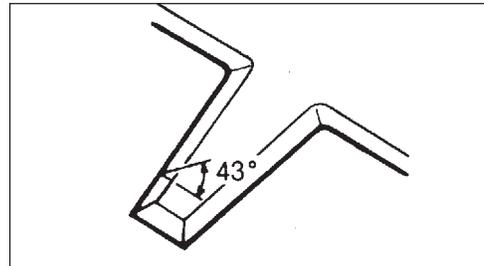
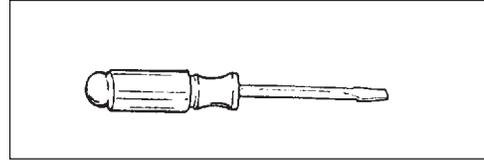
Hedge Clipper Blades are very sharp. Wear gloves to protect hands.

1. Use screwdriver to separate upper and lower cutters equal distance apart.
2. File each edge carefully. Follow the original shape of the blade.

IMPORTANT

If a power grinder is used **DO NOT** allow blade to over heat.

3. Lubricate blades. See "Blade Lubrication Instructions", page 26 this section.



STARTER ROPE REPLACEMENT

Level 3.

Tools required: SAFETY GOGGLES, Screwdriver, 3mm Allen Wrench.

Parts Required: 890 mm (35 in.) ECHO Starter Rope, Lithium based grease.

1. Remove four (4) screws holding starter assembly and rear handle on engine. Remove rear handle and starter.

WARNING



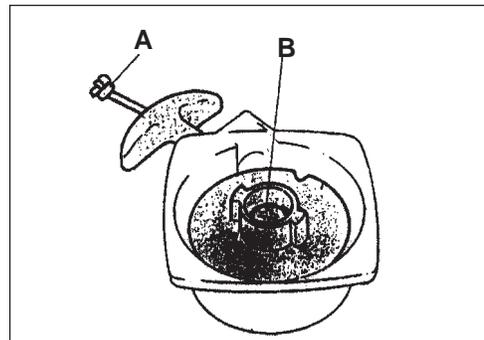
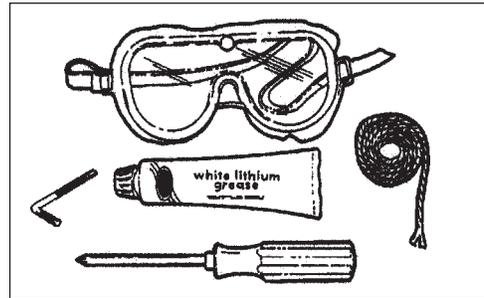
DANGER

The spring inside the starter is under tension. **DO NOT** remove screw (B) until spring tension is relieved.

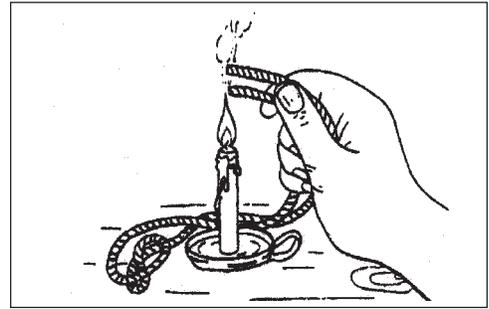
2. Hold starter drum in place and cut off or untie knot (A). Allow the drum to slowly turn until all spring tension is relieved.
3. Remove screw (B), turn drum slightly clockwise and lift carefully and slowly away from spring.

IMPORTANT

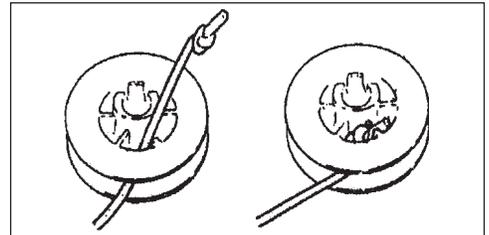
The spring must not come out with the drum. If resistance is felt when lifting the drum, **STOP!** See your Authorized ECHO Service Dealer for help.



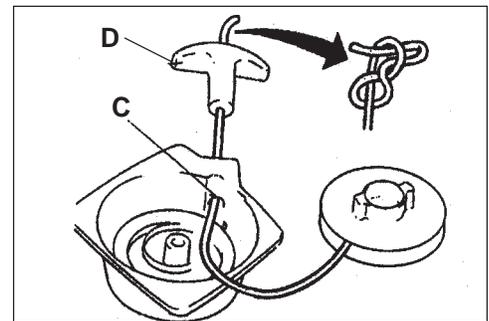
4. Remove the old starter rope and prepare the new rope by first heating both ends to prevent fraying.



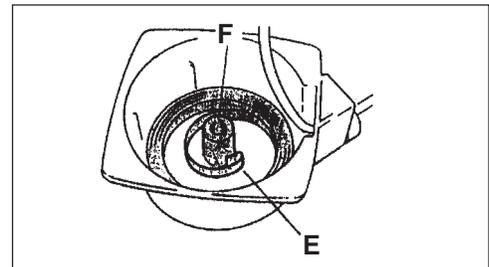
5. Pass one end of the rope through the opening of the drum and tie a knot. Press knot and end of rope in cavity of drum.



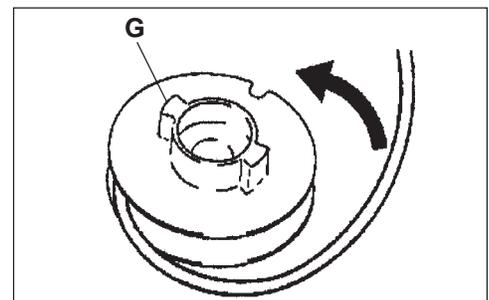
6. Thread the rope through the eyelet in the housing (C) then through the starter handle (D). Follow the illustration and tie another knot in the free end of the rope. Pull the knot into the handle.



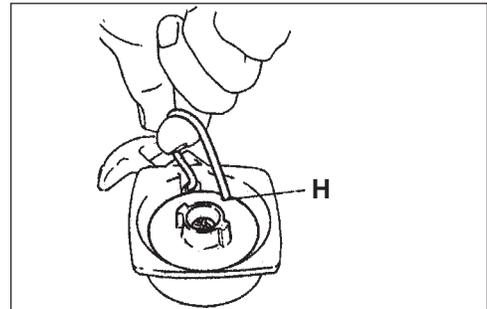
7. Check that the hook (E) on the end of the spring touches the post (F). Lightly grease the top of the spring and the post.



8. Hold the drum pawl (G) side up and wind the rope on the drum counterclockwise, four (4) turns.



9. Install drum. The loop in the spring must engage the slot in the drum. Replace the screw and washer.
10. Hold the rope in the notch (H) and rotate the drum counterclockwise several turns.
11. Hold the drum to prevent it from rewinding, pull the excess rope taught with the handle and allow to rewind slowly.
12. Pull rope several times to check spring tension. If rope does not rewind fully, repeat step 10.
13. Pull rope out all the way. Drum must be able to turn an additional 1/2 turn counter clockwise. If drum does not turn, see your Authorized ECHO Service Dealer.
14. Install starter and rear handle and test.



STORAGE

Long Term Storage (over 30 days)

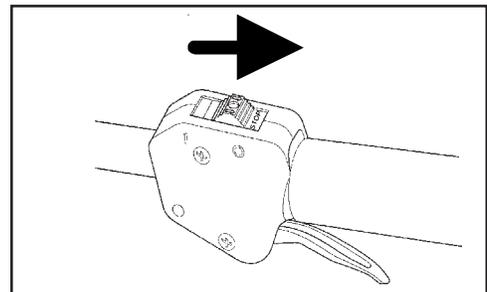
Do not store your unit for a prolonged period of time (30 days or longer) without performing protective storage maintenance which includes the following:

1. Store unit in a dry, dust free place, out of the reach of children.

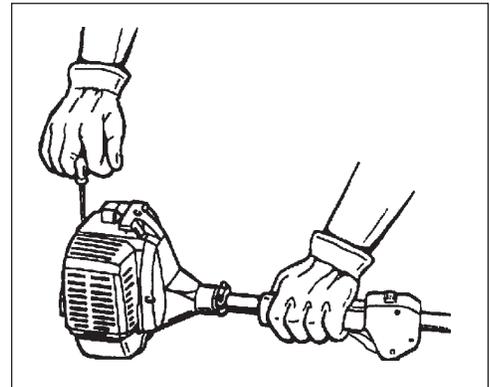
WARNING  **DANGER**

Do not store in enclosure where fuel fumes may accumulate or reach an open flame or spark or serious personal injury may result.

2. Place the ignition in the "OFF" position.



3. Remove accumulation of grease, oil, dirt and debris from exterior of unit.
4. Perform all periodic lubrication and services that are required.
5. Tighten all the screws and nuts.
6. **Drain** the fuel tank **completely** and pull the recoil starter handle several times to remove fuel from the carburetor.
7. Remove the spark plug and pour 1/4 oz. (1/2 tablespoon) of fresh, clean, two-stroke engine oil into the cylinder through the spark plug hole.
 - A. Place a clean cloth over the spark plug hole.
 - B. Pull the recoil starter handle 2-3 times to distribute the oil inside the engine.
 - C. Observe the piston location through the spark plug hole. Pull the recoil starter handle slowly until the piston reaches the top of its travel and leave it there.
8. Install the spark plug (do not connect spark plug cable).



SERVICING INFORMATION

PARTS

Genuine ECHO Parts and ECHO REPOWER™ Parts and Assemblies for your ECHO products are available only from an Authorized ECHO Dealer. When you do need to buy parts **always** have the Model Number, Type number and Serial Number of the unit with you. You can find all three numbers on the engine housing. For future reference, write them in the space provided below.

Model No. _____ Type No. _____ SN. _____

SERVICE

Service of this product during the warranty period must be performed by an Authorized ECHO Service Dealer. For the name and address of the Authorized ECHO Service Dealer nearest you, ask your retailer or call: 1-800-432-ECHO (3246). When presenting your unit for Warranty service/repairs, proof of purchase is required.

WARRANTY CARD

This card is our means of registering all original owners of ECHO equipment. The card plus proof of purchase provides you the assurance that authorized warranty work will be done. It also provides a direct link between you and ECHO if we find it necessary to contact you.

ADDITIONAL OR REPLACEMENT MANUALS

Safety Manuals are available, free of charge, from your ECHO dealer or by contacting Echo Incorporated, 400 Oakwood Road, Lake Zurich, IL 60047.

Operator's and Parts Manuals are available for purchase from your ECHO dealer or directly from ECHO. [See ordering instructions below.]

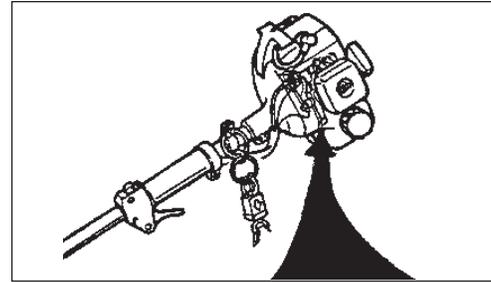
Safety Video is available from your dealer. A \$5.00 shipping charge will be required.

ORDERING INSTRUCTIONS

To obtain a Parts Catalog or Operator's Manual send a check or money order for \$2.00 per Parts Catalog or \$1.50 per Operator's Manual made payable to ECHO, INCORPORATED. State on a sheet of paper the model number and serial number of the ECHO unit you have, part number of the manual (if known), your name and address and mail to address above.

Available Parts Catalog

| | |
|------------------------------------|-------------|
| SHC-1700 Type 1/1E S/N 001001 & Up | 99922202849 |
| SHC-2100 Type 1/1E S/N 001001 & Up | 99922202850 |
| SHC-2400 Type 1/1E S/N 001001 & Up | 99922202851 |
| HCA-2400 Type 1/1E S/N 001001 & Up | 99922202852 |
| Hedge Clipper Safety Video | 99922202800 |



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